



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/733,089

12/11/2003

Janice H. Nickel

200308743-1

9147

22879

7590

06/07/2006

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

DICKEY, THOMAS L

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 06/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n N .

10/733,089

Applicant(s)

NICKEL ET AL.

Examiner

Thomas L. Dickey

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 11, 12 and 14-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2003 and 13 April 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/11/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2826

DETAILED ACTION

1. The amendment filed on 4/13/05 has been entered.

Election/Restriction

2. Applicant's election without traverse of claims 1-10 and 13 in the reply filed on 4/13/05 is acknowledged.

Oath/Declaration

3. The oath/declaration filed on 12/11/2003 is acceptable.

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 670 and 680. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the

Art Unit: 2826

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

A replacement drawing sheet was received on 4/13/06. This drawing sheet is not acceptable, because it is not proper drafting technique to line through a mistake with squiggly lines. This sheet illustrates the changes Applicant has in mind in a wonderfully direct manner, but it cannot be used to replace (this is the function of a Replacement Drawing Sheet) the original sheet in the formal record.

Priority

5. Applicants have made no claim for priority.

Information Disclosure Statement

6. The Information Disclosure Statement filed on 12/11/2003 has been considered.

Specification

7. The title of the invention is not descriptive. A new title, such as "USING SENSE LINES TO THERMALLY CONTROL THE STATE OF AN MRAM" is required that is clearly indicative of the invention to which the claims are directed.

Art Unit: 2826

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

A. Claims 1-6,8, and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by NICKEL ET AL. (2005/0104146).

Nickel et al. discloses a magnetic random access memory device with a plurality of magnetic memory elements 200 comprising a spin dependent tunnel junction (SDT) or a giant magnetoresistive device (GMR) (Nickel et al. explain the equivalence of SDTs and GMRs, for the purpose of this invention, in their paragraph 0023); at least one write conductor 218 (or 222) and a free layer 214, wherein switching a magnetic orientation of at least one of the plurality of magnetic memory elements 200 comprises switching a magnetic orientation of the free layer 214; a sense line 220 comprising a semiconductor material comprising Si, coupled to the plurality of magnetic memory elements 200 in order to sense a magnetic orientation of at least one of the plurality of magnetic memory elements 200; wherein the sense line 220 includes first and second vias (seen as parts 630 in figure 6; note that the sense line is part #620 in figure 6); and wherein the sense line 220 is utilized to thermally assist in switching a magnetic orientation of at least one

Art Unit: 2826

of the plurality of magnetic memory elements 200; wherein the at least one write conductor 218 (or 222) comprises two write conductors 218 and 222 (note paragraph 0029) wherein the two write conductors 218 and 222 are utilized to switch the magnetic orientation of at least one of the plurality of magnetic memory elements 200. Note figures 2 and 6 and paragraphs 0027-0044 of Nickel et al.

B. Claims 1-8,10 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by DAUGHTON ET AL. (2004/0125673).

Daughton et al. discloses a magnetic random access memory device with a plurality of magnetic memory elements 10 comprising a spin dependent tunnel junction (note figures 15A-B and paragraph 0101) or a giant magnetoresistive device (note figures 16A-B and paragraph 0107); at least one write conductor 22 and a free layer 15 or 16, wherein switching a magnetic orientation of at least one of the plurality of magnetic memory elements 10 comprises switching a magnetic orientation of the free layer 15 or 16; a sense line 20 comprising a semiconductor material comprising Si, coupled to the plurality of magnetic memory elements 10 in order to sense a magnetic orientation of at least one of the plurality of magnetic memory elements 10; wherein the sense line 20 includes first and second vias 20'; and wherein the sense line 20 is utilized to thermally assist (note paragraph 0082) in switching a magnetic orientation of at least one of the plurality of magnetic memory elements 10; further comprising a current source (note paragraph 0095) coupled to the sense line 20 wherein utilizing the sense line 20 to thermally assist in switching a magnetic orientation of at least one of the plurality of

Art Unit: 2826

magnetic memory elements 10 further comprises utilizing the current source to provide a current from the first via 20' to the second via 20' wherein the current heats at least one of the plurality of magnetic memory elements 10; wherein the at least one write conductor 22 comprises only one write conductor 22, positioned orthogonal to the sense line 20 and utilized to switch (note paragraph 0095) the magnetic orientation at least one of the plurality of magnetic memory elements 10. Note figures 11A, 15A-B, 16A-B, 20, 21, 22, and paragraphs 0078-0084, 0087-0095, and 0101-0107 of Daughton et al.

Conclusion

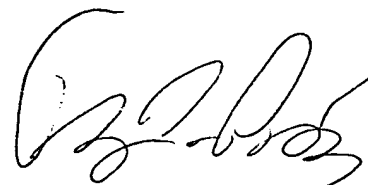
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 571-272-1913. The examiner can normally be reached on Monday-Thursday 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

Art Unit: 2826

have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'T. L. Dickey', with a stylized, flowing script.

Thomas L. Dickey
Patent Examiner
Art Unit 2826
06/06